

California Department of Fish and Game  
722 Capitol Avenue  
Sacramento, California

MARINE RESOURCES OPERATIONS  
Cruise Report

Cruise: Cruise two of the N. B. SCOFIELD for 1958, 58S2-Pelagic Fish.  
Sailed: March 12, 1958 from Los Angeles Harbor.  
Returned: March 28, 1958 to Los Angeles Harbor.

Locality: The coastal waters from San Pedro to Pt. Buchon and the waters around Santa Catalina, San Clemente, Santa Cruz, Santa Rosa, and San Miguel Islands.

Purpose: 1. To locate and sample spawning sardines in order to determine their age and length composition, and to attempt to distinguish between sardines spawning in different areas or at different times.  
2. To collect live sardines for the U. S. Fish and Wildlife Service for genetic studies.  
3. To observe the behavior of spawning sardines in order to develop more efficient sampling techniques.

Methods: Two methods were used in locating fish: (1) a light station, and (2) visual scouting while underway. The methods were used alternately beginning with a light station at the anchorage of the previous day.

At each light station: (1) a 10 minute oblique plankton tow was made with a standard one meter plankton net from a depth of 20 meters to the surface. (2) After the plankton tow was completed, the vessel was allowed to drift and a 1500 watt incandescent light was suspended above the surface of the water for a period of time (up to one hour). (3) While the light was turned on, the surface water temperature and the water temperature at 10 meters was measured, a bathythermograph was made, and the plankton sample was examined for the occurrence of sardine eggs and larvae. (4) If fish appeared under the light, attempts were made to catch them with blanket net, snag gangs, baitless lures, or dipnets.

Visual scouting consisted of observing fish schools while the vessel was underway or by detecting schools with the recording echo sounder. When a school of fish was sighted or detected on the echo sounder, the vessel was stopped and a light station was made.

Results: Locating and sampling spawning groups of sardines was severely hampered by a series of storms which occurred throughout the survey period. Most of the work was accomplished during calm periods between the storms.

Scattered and isolated schools of fish were observed between Pt. Buchon and San Pedro. Schools were more numerous between Pt. Sal and Pt. Arguello and around the Channel Islands.

Sardine eggs in various stages of development were found only in the plankton tows made around Santa Cruz, San Nicolas, and Santa Catalina Islands. Twenty-seven out of 50 plankton tows contained sardine eggs.

Sardines came to the night light on only two of the stations occupied. One sample was obtained at a station made in the channel between Santa Cruz and Santa Rosa Islands. At this station three sets of the blanket net yielded one sardine and one saury, however, 16 sardines and one Pacific mackerel were caught on snag gangs and one squid was dipnetted. These sardines were between  $6\frac{1}{2}$  inches to  $9\frac{1}{2}$  inches long (158-222mm. standard length).

The other light station at which sardines appeared was southwest of Santa Rosa Island.

Other Species and Observations: Anchovy larvae were found in the plankton tows throughout the surveyed area. The greatest concentration occurred between Pt. Hueneme and Santa Barbara.

The sea surface temperatures ranged from 13.1° C to 15.5° C (55.6° F to 59.9° F).

Scientific Personnel: Leo Pinkas, Biologist in Charge, Department of Fish and Game.  
Bruce Dunow, Fish and Game Assistant, Department of Fish and Game.

N. B. SCOFIELD

Cruise 5852

March 12 to 28, 1958

--- Vessel Tract

//// Surveied  
Area

● Sardine Sample

▲ Pacific Mackerel Sample

